United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Billings Field Office
5001 Southgate Drive, PO Box 36800
Billings, Montana 59107-6800

IN REPLY TO:
3809
MTM-88653

June 21, 2006

Dear Reader:

Enclosed for your review and comment is an Environmental Assessment (EA) of the proposed American Colloid Company's (ACC's) Amendment #3 in Carbon County, Montana. Also included for your review and comment is an unsigned BLM's Finding of No Significant Impact/Decision Record (FONSI/DR) for the project.

On February 13, 2006, ACC submitted to MT DEQ's Opencut Program and BLM Billings Field Office, an amendment to expand their current Plan of Operations. Amendment #3 involves adding 490 acres to the existing 6,833-acre permit of which 3,639 acres are BLM surface, and 3,194 acres are private surface. One hundred acres of the 490 acre Amendment #3 area would be BLM surface. The lands involved are located six miles southeast of Warren, Montana, in Sections 28, 29, 32 and 33, T9S, R26E, Montana. 297 of the 490 acres would be disturbed by mining or mine related purposes and approximately 700,000 cubic yards of bentonite is proposed to be extracted by ACC. Access is directly from U. S. Highway 310 or from the mine haul road which goes to Deaver and Lovell across the Wyoming state line.

The permit area surface includes a mix of both private (ACC) and federal lands. Therefore, the mining is regulated by both the Bureau of Land Management and the Montana Department of Environmental Quality. BLM and DEQ have determined that one Environmental Assessment (EA) would be prepared to satisfy requirements of both the National Environmental Policy Act (NEPA) and Montana Environmental Policy Act (MEPA).

Comments on ACC's Amendment #3, the EA, or the unsigned FONSI/DR need to be received in the Bureau of Land Management, Billings Field Office by close of business on July 21, 2006. Comments should be sent to the following address:

Bureau of Land Management
Attn: American Colloid Company's Amendment #3
5001 Southgate Drive
Billings, Montana 59101-4669

After considering the comments received, BLM and MT DEQ will determine the adequacy of the environmental analysis and issue its decision on the amended Plan of Operations. As a result, BLM and MT DEQ may revise the EA or change the FONSI/DR to address public comments. A copy of the completed EA and signed decision will be provided to those individuals or organizations submitting comments.

Please direct comments or questions to Rebecca Spurgin, Project Coordinator, at the above address or by calling (406) 896-5080.

Sincerely,

Sandra S. Brooks
Field Manager

Enclosures: FONSI/DR for the American Colloid Company's Amendment #3, 3 pages
MT-010-06-47 Environmental Assessment, 25 pages

FINDING OF NO SIGNIFICANT IMPACT
AND
DECISION RECORD
American Colloid Company's Amendment #3
ENVIRONMENTAL ASSESSMENT
BLM-MT-010-FY06-47
3809, MTM-88653

Amendment #3, called the Ned Property, involves adding 490 acres to the existing plan, of which 100 acres are BLM surface, and 390 acres are private surface. It is located approximately 6 miles southeast of Warren, Montana contiguous to permitted lands and current mining. Involved lands are located in Sections 28, 29, 32 and 33, T9S, R26E, Montana, (a more detailed legal description can be found in ACC's application). The disturbed area associated with the amendment would total 297.6 acres of which 34.1 acres are BLM surface and 263.5 acres are private surface over a 14-year or less life of the mine.

The purpose of the proposed action is to provide for a continuation of orderly, efficient and environmentally responsible mining of the bentonite resource. These lands are open to mineral entry, and valid mining claims have been filed on these lands. The mining claimant has the right to mine and develop the mining claims as long as it can be done without causing unnecessary or undue degradation and it is in accordance with pertinent laws and regulations. Amendment #3 will allow ACC to mine bentonite reserves as part of the logical mine progression from existing operations.

Mining on Amendment #3 would follow the existing mine plan, which is to excavate a series of small pits and backfilling one into the other. ACC would surface mine to an estimated maximum depth of 40 feet, although in many places, the bentonite outcrops at the surface or is only a few feet below the surface. These mining grounds have a rather large swell factor when disturbed. As a result, the backfill material often completely fills the pits, leaving a smooth topography.

Reclamation would occur in concurrence with mining and immediately following mining. No permanent main stretches of haul road are proposed. Any newly constructed road spurs would be reclaimed. Mining schedules and the sequence of the pits to be stripped would depend upon customer needs.

Finding of No Significant Impact

Based on the analysis of potential environmental impacts contained in Environmental Assessment BLM-MT-010-FY06-47, I have determined that the action will not have a significant effect on the human environment, and therefore, an environmental impact statement will not be prepared.

The reasons for the Finding of No Significant Impact are that the environmental protection measures proposed in the ACC's Amendment #3 and the mitigation developed through the environmental assessment for the protection of the resources will reduce or eliminate the impacts created by the proposed action. Potential impacts to air quality and the erosion of soils will be minimized by frequent wetting of the access road, quarry area and soil stockpiles as necessary to control dust.

Decision

It is my decision to approve the Amendment #3 of ACC's Plan of Operations as detailed in the application submitted by the operator on February 13, 2006, and described in the proposed action section of the EA subject to the following condition of approval in order to prevent unnecessary or undue degradation:

> Revegetation. All seed used on public land will be tested by a registered seed analyst. The seed lab results shall show no more that 0.5% by weight of other weed seeds and the seed lot shall contain no noxious, prohibited or restricted weed seeds. ACC's proposed seed mix and quantities apply to drill seeding per acre; if broadcast the quantities have to be doubled. Seeding is to be applied the September following regrading and spreading of topsoil over disturbed areas.

Financial Guarantee (Bonding)

The operator submitted a reclamation cost estimate as required by 43 CFR 3809.401(d) of $627,630 for the permit and amendment areas. I have determined that this amount is adequate to pay for reclamation of the project area by BLM, including elements in 43 CFR 3809.552(a) and 3809.554(a), should the operator be unable or unwilling to perform the reclamation. To avoid double bonding when a bond is required by both DEQ and BLM, one agency will hold the bond (DEQ will be the bond holder for this bond). The bond terms must:

1) allow the bond to be forfeited by both agencies or by one agency without the concurrence of the other;
2) require, upon forfeiture, for the bond proceeds to be payable to both DEQ and BLM whether the forfeiture was ordered by both agencies or by one agency without the concurrence of the other; and
3) indicate that the bond may be released only upon consent by both BLM and DEQ.

Prior to commencing operations, the operator must supply the BLM with an acceptable financial guarantee instrument (bond) in the amount of $627,630 that meets the requirements of the regulations as specified under 43 CFR 3809.551 and includes the above terms. This instrument should designate BLM, Montana State Office and Montana DEQ as obligees to the bond. BLM Montana State Office will review and accept the bond before forwarding it to MT DEQ for their approval. The bond should be mailed to BLM-MSO, 5001 Southgate Dr., Billings, MT 59101-4669.

Monitoring

A BLM representative will conduct regular field inspections throughout construction, operation, and reclamation activities associated with the approved Plan of Operations as modified by Amendment #3. Field compliance inspections will be documented in the project file in the Billings Field Office of the BLM.

Periodic monitoring of erosion and sediment control structures throughout construction, operation, and reclamation will occur. Surface erosion relative to individual activities will be evaluated. If erosion, sedimentation, or other surface water impacts occur, the situation will be evaluated to identify the potential source(s) and possible corrective actions. Corrective actions will be required in consultation with the Montana Department of Environmental Quality's Open Cut Bureau (MT DEQ).

Rationale

As a result of the analysis in the ACC Amendment #3 Environmental Assessment, BLM-MT-010-FY06-47, it has been determined that the proposed action will not result in significant impacts or unnecessary or undue degradation of the public lands. The proposed action is in conformance with the Billings Resource Management Plan, September, 1984 as amended. The implementation of the proposed action will allow ACC (the operator) to exercise their rights under the Mining Law to develop and mine bentonite from a deposit located just north of the Wyoming/Montana state line, while preventing unnecessary or undue degradation of the public lands.

The No Action Alternative was not selected because it would not allow ACC to conduct the proposed mining activities. The General Mining Law of 1872 gives the claimant the right to explore, discover, and diligently develop the mineral deposit(s) on open public lands in a prudent manner. The Bureau of Land Management's responsibility is to determine and assure that unnecessary or undue degradation does not occur to the public lands during the exploration for and/or development of locatable mineral deposit(s). The project as described in Amendment #3 and the mitigation developed as a result of the environmental analysis would eliminate undue or unnecessary degradation and provide the BLM with measures to manage and protect the resources.

Within 30 days of receiving the signed decision, a party adversely affected by this decision, may ask the BLM State Director to review the decision or bypass State Director review and directly appeal to the Interior Board of Land Appeals (IBLA). Procedures for requesting a State Director review or filing an appeal with IBLA are detailed in 43 CFR 3809.800 to 3809.809. During the pendency of a State Director review or IBLA appeal, this decision will remain in effect unless a written request for a stay of the decision is granted.

_____ _____

Sandra S. Brooks Date
Billings Field Office Manager

Environmental Assessment
EA No. MT-010-06-47

For

American Colloid Company
Amendment #3 to Plan of Operations
MTM 88653, Permit 00082

Bureau of Land Management
Billings Field Office

And

Montana Department of
Environmental Quality

June, 2006

Table of Contents

Abbreviation and Acronyms

ACC	American Colloid Company
ACHP	Advisory Council on Historic Preservation
AUMs	Animal Unit Months
BLM	Bureau of Land Management
BMP	Best Management Practices
dB	Decibels
dBA	A-weighted Decibels
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
EA	Environmental Assessment
EC	Electrical Conductivity
EPA	Environmental Protection Agency
DEQ	Montana Department of Environmental Quality
DR	Decision Record
FONSI	Finding of No Significant Impacts
MEPA	Montana Environmental Policy Act
MOU	Memorandum of Understanding
MSHA	Mine Safety and Health Administration
MAAQS	Montana Ambient Air Quality Standards
NAAQS	National Ambient Air Quality Standards
NCDC	National Climatic Data Center
NEPA	National Environmental Policy Act
PA	Programmatic Agreement
PSD	Prevention of Significant Deterioration
RMP	Resource Management Plan
SAR	Sodium Adsorption Ratio
SHPO	State Historic Preservation Office
TSP	Total Suspended Particulates
TSS	Total Suspended Solids
USC	United States Code
VOC	Volatile Organic Compounds
VRM	Visual Resource Management

1.0 Purpose of and Need for the Proposed Action

1.1 Introduction

American Colloid Company (ACC) has submitted an amendment (Amendment #3) to its existing Plan of Operations MTM 88653 and State of Montana Mined Land Reclamation Permit #00082 for mining bentonite (Figure 1 and 2).

Permit 00082 (originally known as "Reclamation Contract 00082") was issued to ACC March 12, 1973, as a result of the Montana Opencut Act, passed by the legislature in 1971, and subsequent rules adopted in 1973. The BLM's approval for activities by private industry that develop federal minerals is under the authority of the General Mining Law of 1872 as amended; Public Law 167, Act of July 23, 1955; the Mining and Minerals Policy Act of 1970; the Federal Land Policy and Management Act of 1976; and the National Materials and Minerals Policy, Research and Development Act of 1980. The BLM has approved ACC's Plan of Operations with two subsequent amendments to this plan. The last modification to the Plan of Operations, Amendment #2, was approved by the BLM October 05, 1998

The ACC project area is about 6 miles southeast of Warren, Montana, in southern Carbon County. It is within a mining region in which two companies operate, American Colloid Company and Wyo-Ben, Incorporated. ACC's mine-related disturbances in this area are within the Sage Creek and Dry Creek watersheds, while the Wyo-Ben permit area is entirely within the Sage Creek watershed. The Amendment #3 project area is in the southern Dry Creek drainage.

The ACC has facilities located in Lovell, Wyoming, and Belle Fourche, South Dakota. Bentonite mining occurred sporadically in the area from the 1960s until about 1983 when a substantial decline in the bentonite market brought the Warren operations to a standstill. Consequently, the majority of ACC's lands in the area were never affected by mining. Since 1995, improved market conditions have resulted in renewed and more consistent activity in this area. The mining operation provides crude bentonite clay to ACC's processing plant located near Lovell, Wyoming.

The clay is hauled by trucks from the mine pits to the processing plant. Bentonite clay processing includes blending, drying, screening, crushing and packaging to customer specifications. The finished product is used in a multitude of industries including oil and gas drilling, environmental protection (groundwater), metal casting, iron ore processing, and pet litter manufacturing.

Amendment #3 would add some adjacent lands and certain unpermitted islands within the existing boundaries of the original permit to the plan of operations. This will provide access to previously undiscovered bentonite deposits, and will provide additional mineral reserves that will extend the life of the plant operation. Amendment #3 requests that an additional 490 acres be added to the permit of which about 300 acres would be disturbed by mining and auxiliary activities.

The permit area surface includes a mix of both private (ACC) and federal lands. Therefore, the mining is regulated by both the Bureau of Land Management and the Montana Department of Environmental Quality. BLM and DEQ have determined that one Environmental Assessment (EA) will be prepared to satisfy requirements of both the National Environmental Policy Act (NEPA) and Montana Environmental Policy Act (MEPA).

Permit #00082 currently contains 6,833.4 acres. About 428 acres have been disturbed by mining of which about 234.2 acres are currently under some phase of active mining, and 308 have been topsoiled and are in some phase of reclamation. Please refer to the table below.

Table 1.1 Surface Acreage Distribution

Existing Permit 00082 Totals	Totals	BLM		Private	
Total Acres	**6,833.4**		**3,639.3**		**3,194.1**
Undisturbed	6,294.1		3,451.5		2,842.4
Active mining	231.4		115.7		115.7
Partially Reclaimed	307.9		72.1		235.9
Amendment 3 Totals	**490.0**		**100.0**		**390.0**
To be Disturbed	297.6		34.1		263.5
Pre-law Disturbance not permitted	4.7		2.3		2.4

About 3,639.3 acres in the permit are federally owned and administered by Bureau of Land Management (BLM), and 3,194.1 acres are privately owned (Table 1.1). Amendment #3, if approved as submitted, would increase the permit by 490 acres, of which 100 acres would be federal (BLM) and 390 would be private ownership. The disturbed area associated with the amendment would total 297.6 acres of which 34.1 acres are BLM surface and 263.5 acres are private surface.

Not all lands within the permit boundary would be disturbed. Only those lands specifically designated for mining or mine related purposes are allowed to be disturbed. Those areas are designated in the mine plans which accompanied the amendment application and are considered to be a part of the Plan of Operations for the mine if approved or approved as modified via the decision resulting from this EA.

1.2 Agency Roles and Responsibilities.

The preparation of this EA was done by both the BLM and DEQ acting as co-leads. As co-leads, the agencies were responsible for conducting the scoping meetings, developing the alternatives, coordinating with the proponent, conducting the analysis, collecting public comments and conducting consultations. Each co-lead also ensures that the analysis and resulting document fulfills each agency's needs as required by the various federal and state acts, laws, and regulations that pertain to the project.

1.2.1 Bureau of Land Management.

The Federal Land Policy and Management Act of 1976 (43 U.S.C. 1732) requires the Secretary to prevent unnecessary or undue degradation of the public lands from operations conducted under the Mining Law. BLM regulations at 43 CFR 3809 were developed to prevent unnecessary or undue degradation and require that operators mining on BLM lands submit a Plan of Operations and obtain BLM approval before conducting operations (43 CFR 3809.11(a)). Review and approval of a modification (amendment) to an approved Plan of Operations is conducted in the same manner as the BLM review and approval of the initial plan under 43CFR 3809.401 through 3809.420.

ACC has submitted Amendment #3 to the BLM which seeks approval to amend their approved Plan of Operations. In accordance with the rights of entry and use under the Mining Law and the requirements in the regulations at 43 CFR 3809, the BLM must review this application to determine whether it is adequate to prevent unnecessary or undue degradation. BLM may approve the amendment as submitted, approve it subject to changes or modifications necessary to meet the performance standards of 3809.420 and prevent unnecessary or undue degradation, or disapprove/withhold approval because it would result in unnecessary or undue degradation. BLM must approve an amendment (modification) to a Plan of Operations if it would not result in unnecessary or undue degradation.

While the BLM must approve activities that do not result in unnecessary or undue degradation, the approval is a federal action which requires BLM to comply with the National Environmental Policy Act (NEPA). BLM prepares an environmental analysis of the impacts from the Proposed Action

(Amendment #3) and possible alternative in accordance with the Council of Environmental Quality (CEQ) regulations implementing the provisions of NEPA (40 CFR 1500-1508). The results of the environmental analysis (in this case an environmental assessment) will assist in determining whether Amendment #3 is adequate to prevent unnecessary or undue degradation, any needed mitigating measure(s), and whether impacts from Amendment #3 would be significant under NEPA thus requiring the preparation of an Environmental Impact Statement (EIS).

1.2.2 State of Montana Department of Environmental Quality.

The legislation that regulates and controls gravel and bentonite mining operations in Montana is the Opencut Mining Act. This law and its approved rules place operational guidance and limitations on a project during its life, and provide for the reclamation of land subjected to opencut materials mining. The basic standard is that, post-mining, the land would be stable and meet its beneficial use, which is usually designated by the landowner. Under the Act, all lands, even federal lands, are regulated and must meet its requirements. The State and the BLM have signed a Memorandum of Understanding (MOU) under which we jointly regulate federal land under BLM jurisdiction. That MOU is presently being modified to account for recent changes in both state and federal laws, but those MOU discussions would not interfere with the agencies' ability to analyze and render a decision on the Warren Amendment #3 application.

The Act requires that a reclamation bond, cash deposit or other financial instrument be submitted to the state to cover the complete costs of reclaiming the site to its approved, post-mining land use.

The permit or amendment decision is based on whether or not the proponent has met the requirements of the Opencut Mining Act, pursuant rules, and other laws pertaining to the proposed action.

1.3 Purpose and Need for the Proposed Action.

Amendment #3, involves adding 490 acres to the existing plan, of which 100 acres are BLM surface, and 390 acres are private surface. The proposed addition is approximately 6 miles southeast of Warren, Montana, contiguous to permitted lands and current mining. Proposed mining will affect approximately 297 of the 490 acres over a 14-year or less life of the mine. The legal descriptions of the land contained in Amendment #3 can be found on page 25 of this EA.

The purpose of the proposed action is to provide for a continuation of orderly, efficient and environmentally-responsible mining of the bentonite resource. These lands are open to mineral entry, and valid mining claims have been filed on these lands. The mining claimant has the right to mine and develop the mining claims as long as it can be done without causing unnecessary or undue degradation and as long as it is in accordance with pertinent laws and regulations. Amendment #3 will allow ACC to mine bentonite reserves as part of the logical mine progression from existing operations.

Bentonite is an important industrial mineral. The proposed action is needed in order to meet customer clay needs. The various grades of bentonite have different uses; therefore, a company may have pits open simultaneously in more than one area and in different bentonite beds.

1.4 Other Relevant Environmental Documents

• Billings Resource Area Resource Management Plan of 1984, as amended. This EA is in conformance with and tiered to the RMP FEIS.
• FEIS, Proposed Opencut Mining Contract for American Colloid Company, Montana Department of State Lands, 1976.

1.5 BLM Decisions Required

BLM decision options regarding ACC's proposed amendment include approving it as submitted, approve it subject to mitigation, or deny or withhold approval of the amendment application if it is found that the proposal would result in unnecessary or undue degradation of the public lands (No Action Alternative).

1.6 DEQ Decisions Required.

The DEQ decision options would include approving the amendment as submitted, approving as modified, or denying it if it is found that mining could not be done in compliance with the Opencut Act.

1.7 Issues.

The agencies conducted on-site inspections and raised issues considered important in analyzing this amendment.

1.7.1 Water.

Is water being pre-empted from reaching the stream by mining pits?
Are water rights being filed if reclamation calls for permanent ponds?
Would Dry Creek be impacted by mining?

1.7.2 Wildlife.

What effect will mining have on several sage grouse leks in the general area?

1.7.3 Social and Economic Values

What local jobs and payroll might be lost if the mine closed?

1.8 Federal, State and Local Permits, or Required Consultations.

1.8.1 Mined Land Reclamation Permit #00082, as amended.

DEQ Opencut Bureau authorizes activities on private, state, and federal lands such as sand and gravel and bentonite mining as required by the Opencut Act.

1.8.2 BLM Plan of Operations MTM 88653, as amended.

The BLM, Billings Field Office authorizes mining activities on federal surface estate, pertaining to locatable minerals such as bentonite via the authority found in federal regulations at 43 CFR 3809 "Surface Management of Mining Claims Under the General Mining Laws." The BLM generally does not have authority to regulate locatable mineral mining on private surface.

1.8.3 Storm Water Discharge Permit.

DEQ authorizes construction activities that may impact state waters under the General Permit for Storm Water Discharges Associated Construction Activity Permit. ACC has obtained storm water discharge permit #MTR300103 from DEQ.

1.8.4 SHPO Consultation.

Pursuant to the "1997 Programmatic Agreement Among BLM, SHPO and ACHP Regarding the Manner in which BLM will meet its Responsibilities Under the National Historic Preservation Act," BLM was given authority to make the determination of whether cultural properties may be affected by this undertaking as defined in Section 301(7) of the National Historic Preservation Act.

In addition, pursuant to Montana BLM's "Guidelines For Identifying Cultural Resources" Handbook H-8110 (Draft April 2000) Part II.B regarding "When Inventory is Needed," Criteria B stipulates that an appropriate level of inventory and evaluation must be conducted prior to authorizing, or assisting of funding any land use activity which may affect cultural resources. Findings indicate that Class III inventories, encompassing the undertakings' Areas of Potential Effect, are adequate to demonstrate

that no cultural resources exist in the Areas of Potential Effect for this undertaking and that all of the undertakings' activities will occur within adequately inventoried areas.

1.8.5 Tribal Consultation.

Gilbert Brady, Tribal Historic Preservation Officer for the Northern Cheyenne Tribe, was presented details and maps of the proposed action. No comments were offered concerning the action.

2.0 Alternatives, Including the Proposed Action

2.1 Introduction.

This chapter discusses the proposed action and alternatives. Descriptions of current environmental resources at the American Colloid Company bentonite mine and potential impacts on these resources resulting from the proposed action and alternatives are presented in Chapters 3 and 4, respectively. Mitigation measures are identified as a result of the impact analysis and are a part of the Alternative A.

2.2 Development of Alternatives.

Alternatives present different management options in response to the purpose and need for the proposed action and address the relevant major issues related to the proposed action.

2.3 Alternative A – Proposed Action.

Amendment #3 involves adding 490 acres to the existing 6,833-acre permit of which 3,639 acres are BLM surface, and 3,194 acres are private surface. One hundred acres of the amendment area would be BLM surface. Approximately 297 acres divided between BLM (34.1) and private lands (263.5) would be disturbed. Access is from U. S. Highway 310 or from the mine haul road which goes to Deaver and Lovell across the Wyoming state line.

Mining would continue to follow the existing mine plan, which is to excavate a series of small pits and backfill one into the other. ACC would surface mine to an estimated maximum depth of 40 feet, although in many places, the bentonite outcrops at the surface or is only a few feet below the surface. These mining grounds have a rather large swell factor when disturbed. As a result, the backfill material often completely fills the pits, leaving a smooth topography.

Reclamation would occur in concurrence with mining and immediately following mining. No permanent main stretches of haul road are proposed. Any newly constructed road spurs would be reclaimed. Mining schedules and the sequence of the pits to be stripped would depend on customer needs.

The following equipment would be most commonly used in ACC's mining operations: Caterpillar 637 scrapers, Caterpillar D-9 dozers, Caterpillar 988 front-end loaders, Caterpillar patrol/blade, haul trucks and water wagons.

The soils survey identifies some toxic soils in the mining area. It was recommended that they not be salvaged and that they not be used as surface reclamation materials. Good topsoil would be salvaged with rubber-tired scrapers prior to disturbance. The depth of soil salvage depends on the type and availability of soil and ranges from 0 to 31 inches. Topsoil and subsoil for areas designated as temporary overburden stockpiles, haul road segments and pits would be stockpiled. These materials would be clearly marked with signs reading "Topsoil" and "Subsoil." Topsoil and subsoil not stockpiled would be direct-hauled (livespread) onto previously backfilled and contoured areas. Prior to spreading topsoil, all compacted areas would be ripped with shanks attached to the D-9 Cat or patrol/blade. Ripping would be from 10 to 12 inches deep and done in two passes at right angles. This procedure has been used for several years and has proven to be an effective reclamation procedure.

Overburden from each pit would be ripped with a D-9 dozer and stripped using scrapers. It would be temporarily stockpiled or backfilled into a previously opened pit. Bentonite would be removed and either stockpiled with scrapers or extracted from the pit with front-end loaders and loaded onto haul wagons and haul trucks which would haul the bentonite to ACC's processing plant at Lovell, Wyoming.

Open pits would be backfilled in a "tier" system. Generally, the material found lowest in the pit is the poorest quality for revegetation and is replaced in the bottom of the pit. When the final contour configuration is approached, the tiers would be blended to approximate surrounding topography. Past experience has shown that overburden swells sufficiently due to breaking up of the platy shale to compensate for bentonite removal. As a result, the post-mine contours would be approximately equal to the original contours and would be suitable to the post-mine land use of livestock grazing and wildlife habitat.

During the reclamation phase of the operation, after the pits are backfilled and contoured, subsoil and topsoil would be respread. This would be followed by either ripping with a motor patrol or immediately seeding with a modified chisel plow/range seeder. This method provides an uncompacted, moderately rough seedbed which reduces erosion and traps moisture in the furrows for vegetation establishment.

If any solid waste is generated during mining operations, it would be disposed of properly. Protective berms would isolate mining disturbance from undisturbed areas and help reduce the amount of storm water run-on which enters a mining area controlling the run-on would help reduce run-off.

2.4 Alternative B – No Action.

The No Action Alternative involves rejecting the amendment in its entirety. The agencies could deny or withhold approval of the amendment application if it is found that the proposal would result in unnecessary or undue degradation of the public lands or could not comply with the measures found in the Opencut Act. This alternative represents the status quo. Mining under the current plan would still occur until permitted reserves are exhausted.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction.

This chapter discusses environmental, cultural, and socio-economic factors as they currently exist in the Amendment #3 mine area. The following critical elements of the environment are either not present or would not be affected by the Proposed Action and will not be addressed any further in this EA:

- Areas of Critical Environmental Concern
- Environmental Justice
- Farm Lands, Prime or Unique
- Floodplains
- Native American Religious Concerns
- Socioeconomic Human Environment
- Waste, Hazardous or Solid
- Wetlands/Riparian Zones
- Wild and Scenic Rivers
- Wilderness

3.2 Analyzed Elements.

The following is a discussion of the affected environment by resource. Each section describes the resources present in and around Amendment #3 area.

3.2.1 Air Quality.

Under the Clean Air Act of 1970 and EPA's amended primary and secondary National Ambient Air Quality Standards (NAAQS), there are standards for each of the following seven critical pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, fine particulate matter, and sulfur dioxide. These standards establish pollution levels in the United States that cannot legally be exceeded during a specific time period.

Primary standards are designed to protect human health including "sensitive" populations such as people with asthma and emphysema, children, and senior citizens. Primary standards are designed for the immediate protection of public health, with an adequate margin of safety, regardless of cost.

Secondary standards are designed to protect public welfare, including soils, water, crops, vegetation, buildings, property, animals, wildlife, weather, visibility, and other economic, aesthetic and ecological values, as well as personal comfort and well-being. Secondary standards were established to protect the public from known or anticipated effects of air pollution.

Montana has adopted additional state air quality standards. These Montana Ambient Air Quality Standards (MAAQS) establish statewide targets for acceptable amounts of ambient air pollutants to protect human health.

NAAQS and MAAQS establish upper limits for concentrations of specific air pollutants. Incremental increases in the ambient concentration of criterical pollutants are regulated under the Prevention of Significant Deterioration (PSD) program. The program is designed to limit the incremental increase of specific air pollutants above a legally-defined baseline level, depending on the classification of a location. Incremental increases in PSD Class I airsheds are strictly limited, while rules for Class II airsheds are less strict.

The airshed classification of Amendment #3 is Class II. The closest class I area to the proposed project is Yellowstone Park, approximately 65 miles southwest of this area. To the east, the closest Class I air is the Northern Cheyenne Indian Reservation, approximately 95 miles northeast.

Air quality in Amendment #3, appears to be good to excellent with low to no concentrations of pollutants caused by minimal industrial development in the surrounding areas. Existing industrial development involves a limestone quarry five miles north of the Amendment #3 area and crushing plants near Warren, Montana, and Wyo-Ben, Inc.'s bentonite mining adjacent to the Amendment #3 area.

3.2.2 Climate.

The area in and around the Amendment #3 area has a semiarid climate characterized by long cold winters, hot summers, and moderate to high winds. In nearby Warren, annual average precipitation is 6-7 inches; the average annual temperature range is approximately 45-59 F^{o}, and the average temperatures in July and December are 89F^{o} and 16F^{o} respectively. Conservation Service soil survey information for the area indicates a frost-free period of 90 to 120 days. A National Climatic Data Center (NCDC) is located in Lovell, Wyoming. The following are precipitation amounts recorded at this station:

2004	4.5 inches
2003	3.8 inches
2002	4.8 inches
2001	5.7 inches

The nearest NCDC station to the proposed action is located in Warren, Wyoming. The average annual precipitation at Deaver, Wyoming, is 5.32 inches, and the average annual temperature is 60.3 F^{o}.

3.2.3 Cultural Resources.

In 1973, ACC contracted with the University of Montana Statewide Archaeological Survey to conduct an archaeological survey on lands covered by MT Mine and Reclamation Permit #00082. This was a large block survey which included lands described by the ACC's current amendment. One site was recorded during this survey which was not considered significant.

In August 2005, ACC requested Jack Savinni of Llano Consultants to conduct a files search for any other Class III cultural surveys that may have been conducted in the Amendment #3 area. The 1973 report and results of the files search were forwarded to Mr. Glade Hadden, MT BLM, Billings and Mr. Bob Bohman, MT DEQ, Billings. Based on their review of the 1973 report, files search, and the location of the project, they determined that additional cultural surveys would not be necessary.

No known National Register or otherwise eligible properties will be affected by this project. Under the provisions of the National Programmatic Agreement and the Montana State Protocol, no SHPO consultation is required before project approval.

No Native American Religious Concerns are known in the area, and none have been noted by tribal authorities. Should future consultations with tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures may be undertaken.

3.2.4 Geology and Minerals.

The Cretaceous deposits of Wyoming, Montana and South Dakota are the major source of bentonite. Bentonite clay is a fine-grained rock composed mainly of montmorillonite minerals. During Cretaceous time, the United States was covered by a shallow arm of the sea that extended north from the Gulf of Mexico to the Arctic Ocean. Ash from massive volcanic eruptions to the west drifted over this shallow sea on the prevailing winds and settled into the seaway. After deposition and burial, the volcanic ash was converted to bentonite clay. (Lageson and Spearing, 1988)

Two Cretaceous formations have commercial grade bentonite and contain the beds of bentonite that ACC proposes to mine in Amendment #3. The Mowry Shale (upper cretaceous) contains interbedded, siliceous, very fine- to fine-grained sandstone, siltstone, and shale. Locally, some sandstone beds are highly silicified resulting in very hard quartzite. Shales are fissile and mainly medium dark-gray. Bentonite beds are common, 1 to 4 feet thick, including prominent beds at base and near top. Fish scales on bedding planes of sandstones and siltstones are characteristic of the formation. Thin, coarse lag deposit containing fish bones, fish teeth, and chert pebbles near the middle of the section. Upper contact of Mowry is marked by thick bentonite above the highest fish scale-bearing sandstone. Basal contact placed at change from dark-gray fissile Thermopolis Shale to characteristic silvery sandstone and siltstone of the Mowry containing fish scales. Thickness of this formation is about 250 feet. (Lopez, 2000)

Thermopolis Shale and Fall River Sandstone undivided (Lower Cretaceous) contain 50 feet of shale, dark-gray fissile, with few thin bentonite beds in this upper section. The interval below this is dark-gray to brownish-gray and olive-gray and light olive-gray, clayey sandstone. This interval contains bentonite beds and zones of iridescent, very dusky-purple to grayish-black, ironstone concretions. The Fall River Sandstone underlies the Thermopolis Shale and is an upward-coarsening sequence of interbedded medium dark-gray, fissile shale and fine-grained, quartose, light brownish-gray to moderate yellowish-brown sandstone. Sandstone coarsens and beds thicken slightly up section, commonly rippled, burrowed to bioturbated, and moderately to heavily limonite and hematite stained. Total thickness of Thermopolis and Fall River combined is 600 to 700 feet. (Lopez, 2000)

Bentonite is mined extensively in the Bighorn Basin, to the south of the Amendment #3 area. Bentonite has a wide variety of industrial uses and is called "the clay of 1,000 uses." The principal markets for bentonite include iron ore pelletizing, as a "drilling mud" for the petroleum industry,

foundry sand, clumping kitty litter, pharmaceutical and cosmetic industry, water sealant, and binding for animal feed. Production from northern Wyoming and southern Montana accounts for 65 percent of the nation's bentonite. (Lageson and Spearing, 1988)

3.2.5 Land Use and Status.

Historically this area has been used for livestock, grazing, hunting, and recreation. The grazing capacity for livestock in this area is estimated to be approximately 28 acres per animal unit month (AUM). Currently, there are no oil/gas leases nor have any oil/gas wells been drilled in the area. There was a "wildcat" exploration well drilled in the NWSW of section 24, T.9S., R.25E. in 1975, but nothing since that time. Bentonite mining has been the primary industrial development activity. Wyo-Ben, Inc. has active mining to the south and west of ACC's Amendment #3 area. No other land use authorizations have been issued within or around this area.

3.2.6 Noise.

Noise, as perceived by humans, is affected by intensity, pitch, and duration. Loudness is measured in decibels (dB), whereas the A-weighted sound scale (dBA) represents environmental noise. Mining activities are typically subject to noise regulations imposed by the Mine Safety and Health Administration (MSHA). Noise generated by trucks, dozers, and other mine equipment typically ranges from 90 to 100 dBA at the source. For comparison, a gas lawnmower at 3 feet would register 95 dBA, and a jet flying over at 1,000 feet would register about 105 dBA.

The Amendment #3 area is located in a large block of BLM-managed surface approximately 2.5 miles east of Highway 310. To the west of Hwy 310, about one-quarter mile, is the Burlington Northern-Sante Fe Railroad line that is the major north-south line. Thus noise from the highway, rail traffic, and occasional traffic on the nearby Bear Canyon Road, and ACC and Wyo-Ben's bentonite mining operations would be heard in the Amendment #3 area. The closest residential communities include Cowley, Deaver, and Frannie, Wyoming, 6 miles south and southwest, respectively, from the area. There are no residences within a 3.5-mile radius of the proposed quarry site.

3.2.7 Socioeconomic Conditions.

The proposed operation is located in Carbon County, Montana, but the accompanying workforce is located in Big Horn County, Wyoming.

The estimated population of Carbon County in 2004 was 9,755. There are five communities in the county, Bearcreek, Bridger, Fromberg, Joliet, and Red Lodge (county seat). Carbon County covers 2,048 square miles and has a population density of 4.8 per square mile. In the last three decades of the 1900s its population grew by 34.9 percent. On the 2000 census form, 99.0 percent of the population reported only one race, with 0.3 percent of these reporting African-American. The population of this county is 1.8 percent Hispanic (of any race). The average household size is 2.32 persons compared to an average family size of 2.86 persons. In 2003, accommodation and food services were the largest of 20 major sectors with an average wage per job of $10,800. Per capita income grew by 11.4 percent between 1993 and 2003 (adjusted for inflation). (EPodunk, 2005)

Big Horn County is one of 23 counties in Wyoming. The estimated population in 2004 was 11,416. Communities in Big Horn County include Basin (county seat), Burlington, Byron, Cowley, Deaver, Emblem, Frannie, Greybull, Hyattville, Kane, Lovell, Manderson, and Otto. Big Horn County covers 3,137 square miles and has a population density of 3.6 per square mile. In the last three decades of the 1900s its population grew by 12.3 percent. On the 2000 census form, 98.5 percent of the population reported only one race, with 0.1 percent of these reporting African-American. The population of Big Horn County is 6.2 percent Hispanic (of any race). Mining had an average wage per job of $44,439. Per capita income grew by 27.4 percent between 1993 and 2003 (adjusted for inflation). (EPodunk, 2005)

3.2.8 Soils.

Bentonite mining areas are characterized by relatively large outcrops of bentonite, or bentonitic shales, on which there is no topsoil and little or no vegetation. Bentonite soils tend to be weakly developed with thin A horizons. Soil depth increases as the bentonite beds dip downward. Although soils vary from area to area and from formation to formation, three characteristics are common to all: sodicity, salinity, and clay texture. (Cheney, 1977)

Sodicity is expressed by the Sodium Adsorption Ratio (SAR), which formulates the ratio of sodium to calcium and magnesium. In clays, large amounts of sodium (high SAR) cause the clay particles to disperse, which in turn results in the soils becoming nearly impermeable and reduced infiltration. Plant roots may be limited to penetrating in soil cracks and fissures created by clay expansion and contraction. SAR levels of 12 or greater may result in difficult plant establishment. (Cheney, 1977)

Saline soils are ones which contain large amounts of salts as measured by electrical conductivity (E.C.). Salinity creates a harsh environment for plants by inhibiting water uptake. In saline soils, plant water adsorption is decreased because of high solute concentrations in the soil. An E.C. reading above 4 indicates a soil which will require a saline adaptive plant. (Cheney, 1977)

The erosion hazard rating is the susceptibility of a soil to erosion when bare of vegetation. The soils in and around the Amendment #3 area have a high erosion hazard from both wind and water due to the slope of the land, the kind and amount of ground cover, the high clay content and the low organic matter in surface layers. Good vegetation cover reduces both wind and water erosion.

Weather records show that wind gusts up to 70 miles per hour are not uncommon. Soils that are sparsely vegetated and only slightly disturbed are subject to a high soil blowing hazard. Soils high in lime are especially vulnerable to soil blowing, as it contributes to the flocculation of soil particles. This enhances their detachment from the soil mass and they are thus easily airborne. Since most of the soils in the area have some lime in the surface layers, this phenomenon contributes to the very high wind erosion hazard. Soils especially high in lime are those developing in material weathered from limestone. Soils on the foothills, fans and terraces in and adjacent to the limestone areas of the Pryor Mountains are thus subject to a very high soil blowing hazard.

The hazard of water erosion is high even though the average annual precipitation is quite low over much of the area. Most of the precipitation falls from April through June with a high probability of intense rain storms during this period.

The Amendment #3 area is on the south side of a ridge that runs northwest to southeast. This ridge does not have steep slopes or large vertical rock outcrops. The south aspect slope varies in grade from 15 percent down to 5 percent near the base. This slope is bisected by a number of small drainages that drain into the Frannie Canal at least 2-1/4 miles to the south during periods of runoff. From the base of the slope to the above mentioned canal, the slope ranges from 1-3 percent.

3.2.9 Topography.

The topography of the project varies from flat to steeply sloping. Elevation ranges from approximately 4,480 to 4,780 feet. Two distinguishing geographical features are present within the Amendment #3 area. A high, steep ridge is a prominent topographical feature in the western portions of Sections 29 and 33 lying in a northwest/southeast orientation. The eastern portions of section 29 can be described as rolling bentonitic shale outcrop. These areas are mostly void of vegetation due to lack of topsoil and extreme slopes. The balance of the area which supports vegetation is Saltbush/Sagebrush rangeland.

3.2.10 Vegetation.

Vegetation community mapping, cover sampling and compilation of data was done by Don Dahlgren, Environmental Consultant, Dahlgren Consulting. Vegetation community types were defined according to dominant vegetation species. Vegetation communities were mapped in May of 2005 with GPS equipment.

The vegetation in the Amendment #3 area consists mostly of native grasses and shrubs; no trees were present. Species list of the vegetation observed on the project area:

Artemisa tridentata	Big sagebrush
Atriplex gardneri	Gardner saltbush
Atriplex confertifolia	Shadscale saltbush
Artemisia fri~~n~~gida	Fringed sagebrush
Ericameria nauseosa	Rubber rabbitbrush
Picrothamnus desertorum	Bud sagewort
Pascopyrum smithii	Western wheatgrass
Pseudoroegneria spicata	Bluebunch wheatgrass
Poa secunda	Sandberg bluegrass
Buchloe dactyoides	Buffalo grass
Sarcobatus vermiculatus	Black greasewood
Achnatherum hymenoides	Indian ricegrass
Allium textile	Prairie onion
Opuntia polyacantha	Plains prickly pear
Salsola tragus	Russian thistle
Bassia scoparia	Summer cypress
Lappula occidentalis	Beggers tick
Musineon tenuifolium	Slender wild parsley
Halogeton glomeratus	Halogeton

Noxious and nonnative species generally become established in areas of surface-disturbing activities. Invasive/nonnative species often create a monoculture of undesirable plant species and further reduce native plant species and biological diversity. Invasive/nonnative plant species increase wind and/or water erosion and degrade water quality. During a site visit of the Amendment #3 area, Halogeton (*Halogeton glomeratus*), an annual weed, was identified intermittently in previously mined and reclaimed areas. This species is often found in alkaline soils and readily invades disturbed or over-grazed lands. Russian thistle (*Salsola tragus*) was also identified in the Amendment #3 area. This annual weed is well adapted to disturbed wastelands, over-grazed rangeland and irrigated cropland.

The Table 3.1 and the narrative below describe the community types that were mapped.

Table 3.1. Defined Vegetation Communities in ACC's Amendment Area

Vegetation Community	Acres to be disturbed	Total acreage
Gardner Saltbush	108.6	179.5
Big Sagebrush	53.6	87.8
Badlands	132.9	209.5
Disturbed Lands	2.5	13.2*
TOTAL	297.6	490.0

*4.7 acres are "Pre-Law". Areas mined prior to 1973 are commonly referred to as "Pre-Law" lands since the requirement to reclaim mined lands came into effect in 1973.

3.2.10.1 Gardner Saltbush.

A total of 108.6 acres of the area to be disturbed is classified as a Gardner Saltbush shrubland on gently sloping terrain. There is a large amount of bare soil in this community. This mapping unit also contains inclusions of Big Sagebrush and Bentonite/Shale Outcrops.

Gardner saltbush is the dominant vegetation observed within this community. Total vegetative cover within this community averages 28.9 percent. Other prevalent vegetation found in this community includes Big sagebrush, Slender wild parsley, and Summer cypress. Due to the abundant spring rains in 2005, these species appeared more numerous and robust than in previous years.

3.2.10.2 Big Sagebrush.

A total of 53.6 acres of the area to be disturbed is classified as a Big sagebrush shrubland on gently to moderately sloping terrain. There is a large amount of bare soil in this community. Small rocks, cobbles, and sandstone fragments are scattered throughout. This mapping unit also contains inclusions where Gardner saltbush and Black greasewood, are dominant.

Big sagebrush is the dominate vegetation observed within this community. Total vegetative cover within this community averages 46.8 percent. Other prevalent vegetation found within this community includes Gardner saltbush, Black greasewood, and Sandberg bluegrass.

3.2.10.3 Badlands, Barren Shale/Bentonite Outcrops.

A total of 132.9 acres of the area to be disturbed is classified as Badlands on steeply sloping terrain. Since vegetation is absent and revegetation will not be required, sampling densities were not conducted.

3.2.10.4 Disturbed Land.

2.5 acres of previously disturbed land will be redisturbed. Associated disturbance from the 1979 pit extended into the lands within ACC proposed mining area. This disturbance has not been reclaimed as of this time, however.

3.2.11 Visual.

This proposed activity can be seen from Hwy 310; however, it would be most noticeable by northbound traffic. Although no official visual resource management (VRM) inventory has been conducted for the area of Amendment #3, areas used for this type of activity would typically be managed per BLM's Class IV objectives. These objectives are: provide for activities that could alter the landscape characteristics; the level of activity can be high; and the activities can be in view of the public, but they should not dominate the characteristics of the landscape.

3.2.12 Water Quality, Surface and Ground.

The characteristics of the parent material dominate physical and chemical characteristics of the soil. This in turn has an effect on the hydrology and water quality of the area. In the shales, soluble salts, predominantly sodium salts, are present in most soils in the region. Slope wash/runoff concentrates these salts in the lower reaches of the landscape, usually in/near drainages. A heavy concentration of salts may result in a clay pan area. Salts in these areas would affect vegetation populations in areas of concentration.

3.2.12.1 Groundwater.

A water well search was conducted through the Montana Ground-Water Information Center (MT Bureau of Mines and Geology). The nearest water well is in the S½NE¼SE¼, Section 29. This is a private well owned by a nearby landowner. According to the well owner, this well is approximately 3,100 feet deep. ACC purchases water produced by this well for dust

control application on its haul roads. Two additional wells are located near the Amendment #3 area. First is Blue Wash well located ¼ mile directly north of the project; SW¼SE¼, Section 20, T.9S.R26E. Second, the McKown Well is located ½ mile directly east of the project; NW¼SE¼, Section 34, T.9S., R.26E.

Based on exploratory drilling which was done on the project from 1985 through 2005 by ACC, depth of overburden in the area of proposed mining ranges from 0-50 feet. Exploratory drilling indicates that there is an area at the toe of the ridge in Section 33 where mining will intercept shallow groundwater at approximately 25-30 feet. Data suggests the presence of a perched water table lying within the shale overburden between two impermeable bentonite beds. The lowest point of the bottom bentonite bed is 37 feet. Mining will not occur below this point in this area. The shallow water table in this area is not typical of the general useable water table in the Warren area as indicated by the depth of the private well in Section 29.

No significant water was encountered on Amendment #3 during extensive auger drilling for bentonite, according to logs from ACC's drill crew.

3.2.12.2 Surface Water

There are no perennial or intermittent water features in the Amendment #3 area. The most prominent water feature, appropriately named "Dry Creek," is an ephemeral drainage that slopes in a southeasterly direction with numerous unmarked ephemeral channels draining into Dry Creek. Surface flow is minimal and confined to periods of snow melt or rainfall.

3.2.13 Wildlife.

Wildlife surveys were conducted, both formally and informally within the Amendment #3 and surrounding areas. Formal surveys were conducted by environmental specialists to identify impacts to sensitive species such as prairie dogs, sage grouse, listed threatened and endangered species, and Migratory Birds of High Federal Interest. Informal wildlife observations of unusual or special interest are also noted by ACC field personnel and contractors while on site when exploration and other environmental baseline work is being performed, such as soils and vegetation investigations.

3.2.13.1 Sage Grouse.

No Sage grouse (Centrocercus urophasianus) have been observed in theAmendment #3 area. Sage grouse depend upon sagebrush for forage, mating areas, nesting, and wintering activities. Summer broods may be seen in grassy areas where vegetation is moist, and in dry years, near water sources.

3.2.13.2 Non-Game Birds.

Non-game bird species seen in the area include the following: horned lark (eremophila alpestris), common crow (Corvus brachyrhynchos), killdeer (Charadrius vociferus), and mountain plover.

3.2.13.3 Raptors.

Searching for raptors and their nests was done by scanning with binoculars from strategic points throughout the area. Sightings of golden eagles (Aquila chrysaetos) and red-tailed hawks (buteo jamaicensis) hunting in the area are not uncommon. No raptor nests have been discovered in or around the project area.

3.2.13.4 Prairie Dog Towns.

No prairie dog towns occur in the Amendment #3 area or in the immediate vicinity. A prairie dog town can be potential habitat for endangered black-footed ferrets (Mustela nigripes) or sensitive burrowing owls (Speotyto cunicularia).

3.2.13.5 Threatened and Endangered Species.

No endangered wildlife species as listed in the Montana Natural Heritage Program, Natural Resource Information System (July 2004) have been sighted by ACC on the Amendment #3 area. A field tour was conducted on September 1, 2005, with several personnel from the MT DEQ and Billings BLM offices. Vegetation and wildlife professionals from both offices were present and opinion was that there were no known special wildlife concerns related to ACC proposed amendment.

There are no known or suspected occurrences of threatened and endangered species or critical habitat in the Amendment #3 area. Wildlife habitat primarily consists of stands of big sage that are located down off the ridge top. This area has mule deer, coyotes, rabbits, snakes, an occasional mountain lion, common crows, magpies, and hawks. There was a white-tailed prairie dog colony within one-half mile of the Amendment #3 area, but it appears that this colony has been decimated by the sylvatic plague. There is one sage grouse lek within two miles of the proposed area. The 53 acres of big sage disturbance could provide nesting, forage and winter cover for these birds.

4.0 ENVIRONMENTAL CONSEQUENCES

This chapter identifies the physical, cultural, biological, social, and economic impacts of implementing the proposed actions. The anticipated direct and indirect impacts of the Proposed Action and Alternatives are discussed in this chapter. Potential mitigation measures are identified, where necessary, in response to anticipated impacts of the Proposed Action. Mitigation measures can be required by the BLM as a condition of approval (Decision Record) and are implemented by incorporating them into the Plan of Operations. Residual impacts are those impacts remaining after implementation of mitigation measures. Cumulative effects result from the incremental effects that result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable actions.

In order to evaluate potential environmental impacts resulting from the Proposed Action and any other long range future actions, the agencies evaluate the potential mining development of the mine areas using existing levels of development, a mine plan developed by ACC for the amendment lands. The duration of the possible impacts is analyzed and described as short-term (up to 5 years) and long-term (5 to 20 years).

4.1 Impacts of the Proposed Action (Alternative A).

4.1.1 Air Quality.

Air quality could be degraded in the short-term as a result of the proposed mining activity. Pollutants would include suspended particulate matter and fugitive dust generated by upgrading the access road; removing topsoil, subsoil, and pit spoil; and transporting the bentonite by trucks on the haul road. Other sources would be gaseous emissions from all heavy equipment and haul trucks with diesel engines.

Impacts to air quality would be considered significant if project activities are in violation of federal and/or state air quality standards. However, the majority of the impacts would be short term and intermittent. Overall emissions and pollutants would not significantly increase from those produced by ACC's current mine operations.

Mitigation measures to be taken as necessary to control fugitive dust emissions would include wetting the work area, haul road and soil stockpiles. The site would be monitored by BLM and DEQ personnel, and the frequency of dust suppression efforts may be increased or decreased based on site conditions.

4.1.2 Climate.
There would be no impact to climatic conditions from the proposed action.

4.1.3 Cultural Resources.
No impacts to cultural resources are anticipated because an inventory of the Amendment #3 area did not identify any historic properties.

If a cultural resource or suspected artifact is encountered during the course of the mining operations, the operator must suspend operations and notify the BLM. The BLM would then determine the necessary course of action, in accordance with the procedures in 43 CFR 3809.420(b)(8). If at-risk eligible cultural properties are discovered during quarry operation or management activities, appropriate mitigation measures may be identified in consultation with Montana SHPO.

4.1.4 Geology and Minerals.
Mining the bentonite deposit would result in a long-term, irretrievable loss of this particular mineral deposit. However, because of numerous beds of bentonite in abundance throughout the region, the mining of 700,000 cubic yards from the Amendment #3 area would not change the overall availability of bentonite.

4.1.5 Land Use and Status.
The Amendment #3 area and the adjacent areas are used as rangeland. The grazing capacity for livestock is estimated to be approximately 28 acres per animal unit month (AUM). Thus there would be a loss of about three federal AUMs.

4.1.6 Noise.
Public nuisance and noise are not expected to exceed what is now heard from current mine and traffic sources. The activity in the Amendment #3 area would be similar to ACC's current mine operations and noise impacts generated would continue at a comparable level.

Noise levels in the mine area and along the haul road are expected to above background levels during working hours; however, the operation would have minimal impact on noise levels along Wyoming State Highway 310 and in Cowley, 8 miles south of the site. Because there are no residences within a 3-mile radius of the Amendment #3 area, there would be negligible noise impact to local residents.

4.1.7 Socioeconomic Conditions.
Because of the proposed action is a continuation of mining rather than new or increased mining, there should be minimal impacts to current socioeconomic conditions in the Cowley/Lovell area. The work force required for this project is already in-place. There would be revenue in the form of wages, fuel purchases, equipment parts and repairs, personal property taxes and miscellaneous items generated from the proposed mining.

4.1.8 Soils.
The proposed action requires all usable topsoil to either be salvaged and stockpiled or applied directly to contoured areas. Whenever possible, top soil will be salvaged and direct hauled to previously mined areas. This will promote quicker vegetation establishment, reducing potential soil erosion by wind and water. Material not suitable for vegetative growth will be placed beneath the root zone.

Best management practices are utilized to insure minimum erosion from the stockpiled soils and overburden. Any topsoil piles and direct-applied areas will be seeded to protect them from erosion.

However, some soil will be lost to wind and water erosion until vegetation is re-established. This loss should be minimal depending on the intensity, frequency and duration of erosion-producing events.

Rock, bentonite and shale outcrops support little or no vegetation and will not be salvaged as topsoil. Vegetation is often sporadic due to soil chemistry and physical characteristics.

The post-mining soils will be replaced at a more uniform depth than how the pre-mine soils where found. The average soil replacement depth in the areas proposed for mining will be 6 inches for both topsoil and subsoil. This will have a beneficial impact on areas that had little or no topsoil prior to mining. The reclaimed lands will have gentler slopes than pre-mine, which will reduce surface run-off rates and increase infiltration areas.

Water trucks would be used to control dust (wind erosion) during operations. Wetting the quarry and haul roads would create a "crust" over the disturbed ground and would serve as a protective barrier to erosion. Haul road construction directs water runoff as quickly as possible from the road surface. Water bars and hay bales also redirect and cut the velocity of surface water discharge during precipitation events and collect water necessary to promote and sustain plant growth. When the disturbed areas are backfilled and recontoured, these areas would be reseeded during the first autumn following backfilling.

Replaced soils should support a stable and productive vegetative cover capable of sustaining post-mining land uses, which include grazing and wildlife habitat. Therefore, potential long-term impacts to the soil resources on the Amendment #3 area will not be adverse.

4.1.9 Topography.

The proposed action will result in alteration of the existing landscape during mining. During reclamation activities, the affected land will be contoured to blend in with the surrounding topography, and generally slopes will be no steeper than 5:1 which will help provide stabilization against wind and water erosion.

Bentonite on the proposed mine sites lies in a deposit 2-5 feet thick; however, the reduction in elevation will be generally less than the thickness of the bentonite seam removed because of overburden swelling. On relatively level sites, post-mine contours will approximate the original contours.

The restored land surface will have less topographic diversity than before mining. This impact would be a permanent effect to the landscape. Reduction of topographic diversity can reduce vegetation and habitat diversity, which can result in reduction of wildlife carrying capacity in restored areas for some species.

A flatter surface will decrease the surface water run-off rates after precipitation events, thereby reducing the erosion on reclaimed soils and a flatter surface will allow for greater infiltration of water.

4.1.10 Vegetation.

Each year, ACC reclaims approximately the same amount of acreage as was affected by mining during that year. Therefore, only small portions of the total mine area would be unvegetated at any one time. Many different stages of vegetative establishment will occur on the mine area over time ranging from fully revegetated to newly seeded areas. The mined lands will eventually reach a pre-mine level of vegetation. In some cases, there may be areas without vegetation reflecting similar pre-mine conditions. Areas of the proposed action are currently large outcrops of bentonite, or bentonitic shales, on which there is no topsoil and little or no vegetation.

A big concern would be the introduction of noxious weeds by trucks and earth moving equipment coming into the area. All heavy equipment would be power-washed and have clean air filters prior to leaving Highway 310. The operator would be responsible for the control of all noxious weeds along access roads and mined areas. All disturbances would eventually be reseeded with native vegetation per attached surface stipulations. Upon abandonment of the mining, the access road would remain for public access.

4.1.11 Visual.

Because of the relatively small size, short duration and location of the proposed operation, visual impacts to surrounding areas would minimal. Locally, long-term visual impacts would be mitigated by site reclamation.

4.1.12 Water Quality, Surface and Ground.

Post-mine reclamation may actually enhance the long-term surface water quality because post-mine vegetation cover often exceeds that of the native vegetation, which will decrease erosion, thereby increasing water quality.

Water quantity from the reclaimed areas will not be significantly reduced as a result of mining. The reclaimed land will have gentler slopes, which tends to reduce surface run-off rates by increasing infiltration rates. However, the areas reclaimed in relationship to the total watershed acres of the intermittent drainages are small and the yields are not reduced significantly. The high clay content of the soils tends to seal over relatively quickly which reduces infiltration and not greatly affecting runoff quantity. Small pits may be left for stock water but these will retain runoff from relatively small areas, less than 30 acres, therefore the changes at an intermittent drainage will not be measurable.

4.1.12.1 Groundwater.

Bentonite mining rarely occurs at depths sufficient to contact groundwater. When exploratory bentonite drilling does occasionally encounter shallow groundwater, a perched water table, it is not of sufficient quantity to provide livestock or domestic use but may produce small wet areas high on the ridges. These areas are avoided by mining because of the high cost to recover the bentonite in wet areas.

During the mining process, a small amount of the bentonite is usually left in-situ. The small amount of bentonite remaining in the pit, impedes downward migration of waters from the overlying reclaimed land and may re-establish the perched groundwater and subsequent wet areas on the ridges.

Based on the data that no significant groundwater is known to exist above the deepest projected depth of mining and there are no known aquifer recharge areas within the mine area, it is not anticipated that the groundwater will be impacted.

4.1.12.2 Surface Water.

During active mining operations, water quality will decline due to an increase in total suspended solids (TSS) during storm events. However, since the native undisturbed soils in the area are naturally erosive and dispersive, and with sediment control measures taken by ACC and with the filtering action of the off-site vegetation as the runoff water leaves the disturbed area; it is anticipated that there will not be a discernable impact from the background sediment yield or the general quality at any intermittent drainage.

4.1.12.3 Mitigation.

Mitigation by ACC includes temporarily diverting surface water around active mining areas so there will be minimal effects to the watershed. Surface water flow will be diverted around the

up-slope side of open pits with v-ditches and/or berms. Controlling run-on will reduce water run-off from disturbed areas, thereby reducing the sediment loading onto undisturbed lands.

Water flow will be channeled in its original direction so as not to affect the volumes of water in the watershed. Overburden and soil stockpiles will be placed away from drainages. If excessive erosion occurs within a diversion, rows of straw bales, sediment fences, and/or water bars will be installed to reduce erosion and protect undisturbed land from sediment deposition. During reclamation, these temporary diversions will be removed and the drainage will be reestablished.

Where channel reconstruction is necessary to prevent substantial erosion, the channel will consist of flat scraper width bottoms that will meander as much as practical. The channel will be reconstructed in approximately the same location and at the approximate gradient as the pre-mine feature, to the extent possible. The goal will be to approximate the pre-mine typical channel cross-section while minimizing potential for erosion. This may include the placement of a shallow v-ditch guide channel which will contain the surface flow resulting from the majority of the storm events. All constructed channels will be seeded perpendicular to water flow. Rows of straw bales, sediment fences, and/or water bars may also be used to reduce erosion and encourage meandering within the channel.

4.1.13 Wildlife.

Wildlife would be temporarily displaced from the area during the time mining exists. There are two active sage grouse leks within a 2.5 mile radius of the mine site. The sagebrush community along Bear Canyon and to the south of the Amendment #3 area has value for brood rearing and winter habitat for sage grouse. Fifty three acres of sagebrush habitat disturbance is located at the mine site. The mine disturbance should have minimal effect on sage grouse. There may be incidental mortality from road traffic, but this should be minimal if the sage grouse are utilizing the preferred sage brush habitat to the south and most of the mine traffic is routed to the north.

The proposed action would add 490 acres to ACC's plan of operations, of which 297.6 acres would be disturbed by mining. This would be a direct loss of wildlife habitat (both forage and cover). Successful reclamation would stabilize disturbed sites and attempt to restore disturbed areas to predisturbance conditions. Changing to shrub-grassland with intermingled forbs, to an environment characterized by dominance of grasses, would affect those species of wildlife that are sagebrush obligates by reducing vital habitat and forage. Some species of birds, small mammals and reptiles, as well as sage grouse and pronghorn antelope, would be affected by this change. Due to the relatively small number of acres directly impacted, and the result of ACC wildlife surveys showing relatively low and stable wildlife populations, this loss of habitat should not affect the long-term viability of these species in the project area.

Shrubs, particularly big sagebrush, provide important winter forage for big game, and cover for sage grouse. Removal of shrubs during mining will decrease forage availability and reduce the winter carrying capacity of sagebrush areas. Reclamation activities will restore forage vegetation (grasses and forbs) in a relatively short period of time (1-3 years).

Vegetation that is suitable for wildlife cover (shrubs) will require a much longer period of time to establish. As shrubs begin to grow in reclaimed areas, they too are primarily available in the summer months as forage, until they grow into mature plants, able to provide hiding and thermal cover (25-30 years), and may also be unavailable during the winters.

Indirect impacts from development actions occur to wildlife species that are sensitive to human activities, require large blocks of uniform cover, or are displaced. Similar habitat is available in

immediately adjacent areas, will be used by those animals mobile enough to leave when mining begins. Some redistribution mule deer, upland game birds, and some small mammals will occur during mining as they are displaced to adjacent lands.

4.1.14 Cumulative Impacts.

Cumulative impact as defined by the Council on Environmental Quality (40 CFR 1508.7) is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). These reasonably foreseeable future actions refer to future action projections, or estimates, of what is likely to take place when a given proposed action is implemented. They are not part of the proposed action, but are projections being made so that future impacts, cumulative and otherwise, can be estimated as required by NEPA. Cumulative impacts are interdisciplinary, multi-jurisdictional, and do not conform to political boundaries. Cumulative impacts are the total effect on a given resource or ecosystem of all actions taken or proposed.

Existing actions considered while determining the cumulative impacts include adjacent abandoned mines, the Bighorn Limestone Quarry, a gypsum quarry, and Wyo-Ben, Inc.'s bentonite mine along with ACC's current mining. The Plan of Operations and the adjacent operations are unlikely to result in cumulative impacts, specifically addressing the potential for air quality, noise or visual cumulative impacts.

4.2 Impacts of the No Action (Alternative B).

The Amendment #3 area would remain in its current condition as described in Section 3, Affected Environment. No mining or reclamation activity would occur as described in the proposed Plan of Operations, and there would be no impact to resources in the Amendment #3 area.

The area would remain open to mineral entry and development under the Mining Law. Other Plans of Operations or Notices could be submitted for mining activity in the future.

5.0 CONSULTATION AND COORDINATION

5.1 Persons and Agencies Consulted.

The following people and agencies, along with the general public, have been and would continue to be consulted regarding mining and reclamation at this site:
Jo Stephen, Montana DEQ, Environmental Management Bureau, Opencut Program, Billings Regional Office, Industrial and Energy Minerals Bureau
Gilbert Brady, Tribal Historic Preservation Officer for the Northern Cheyenne Tribe

5.2 List of Preparers and Reviewers.

Jo Stephen, Reclamation Specialist, MT DEQ, Opencut Program
Peter Mahrt, MT DEQ
Rebecca Spurgin, Mining Engineer/Geologist, BLM
Lynn Anderson, Recreation Specialist, BLM
Jim Sparks, Assistant Field Manager, BLM
Tom Carroll, Realty Specialist, BLM
Glade Hadden, Archeologist, BLM
Melissa Half, IPM Specialist (Noxious Weeds), BLM
Larry Padden, Rangeland/Livestock Management Specialist, BLM
Jay Parks, Wildlife Biologist, BLM
Nora Taylor, BLM State Program Lead, Botanist

6.0 REFERENCES

BLM, 2004, Surface Management Status, Bridger, Montana Map.

BLM, 1984. Final EIS and ROD for the Billings Resource Management Plan.

Cheney, P., Ed., 1977. Bentonite mining related reclamation problems in the Northwestern States. MT Department of State Lands.

EPodunk Website, 2005. http://www.epodunk.com.

Environmental Defense Website, 2005. Scorecard, the Pollution Information Site. http://www.scorecard.org.

Lageson, D.R. and Spearing, D.R., 1988. Roadside Geology of Wyoming.

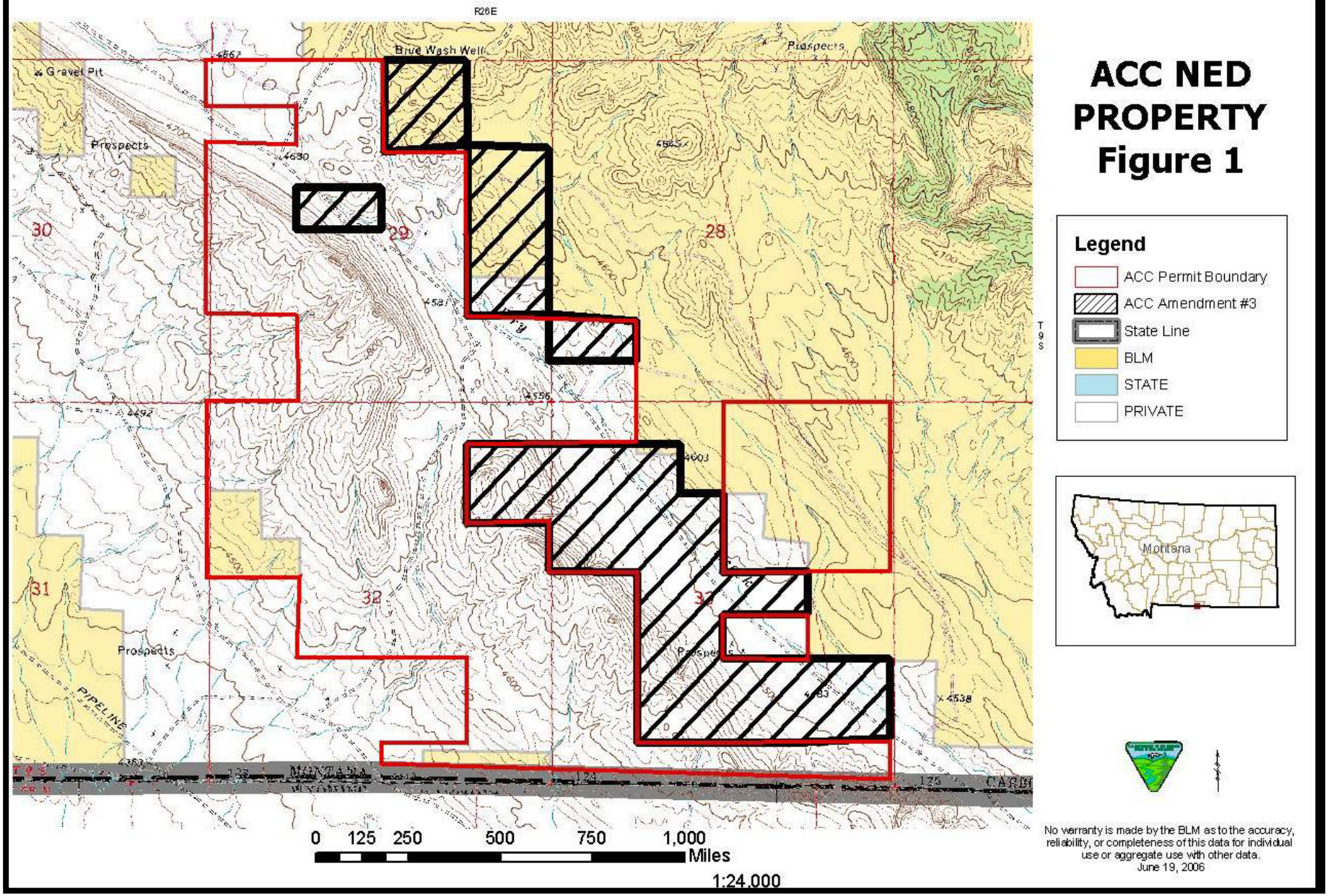
MBMG, 1974. Preliminary geological map of the Red Pryor Mountain 7.5 minute Quadrangle, Carbon County Montana. MGMG Open—File Report 68.

NCDC Station 482415, Deaver, Wyoming. 2006. http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?wydeav.

Perry, E.S., 1949. Gypsum, Lime and Limestone in Montana. Montana Bureau of Mines and Geology. Memoir No. 29, 45 p.

Regis, A.J., 1978. Correlation between physical properties and exchangeable chemistry of bentonites from the Western United States. DOI, BLM. Technical Note 313.

USDA, NRCS. 2005. The Plants Database, Version 3.5 (http://plants.usda.gov).

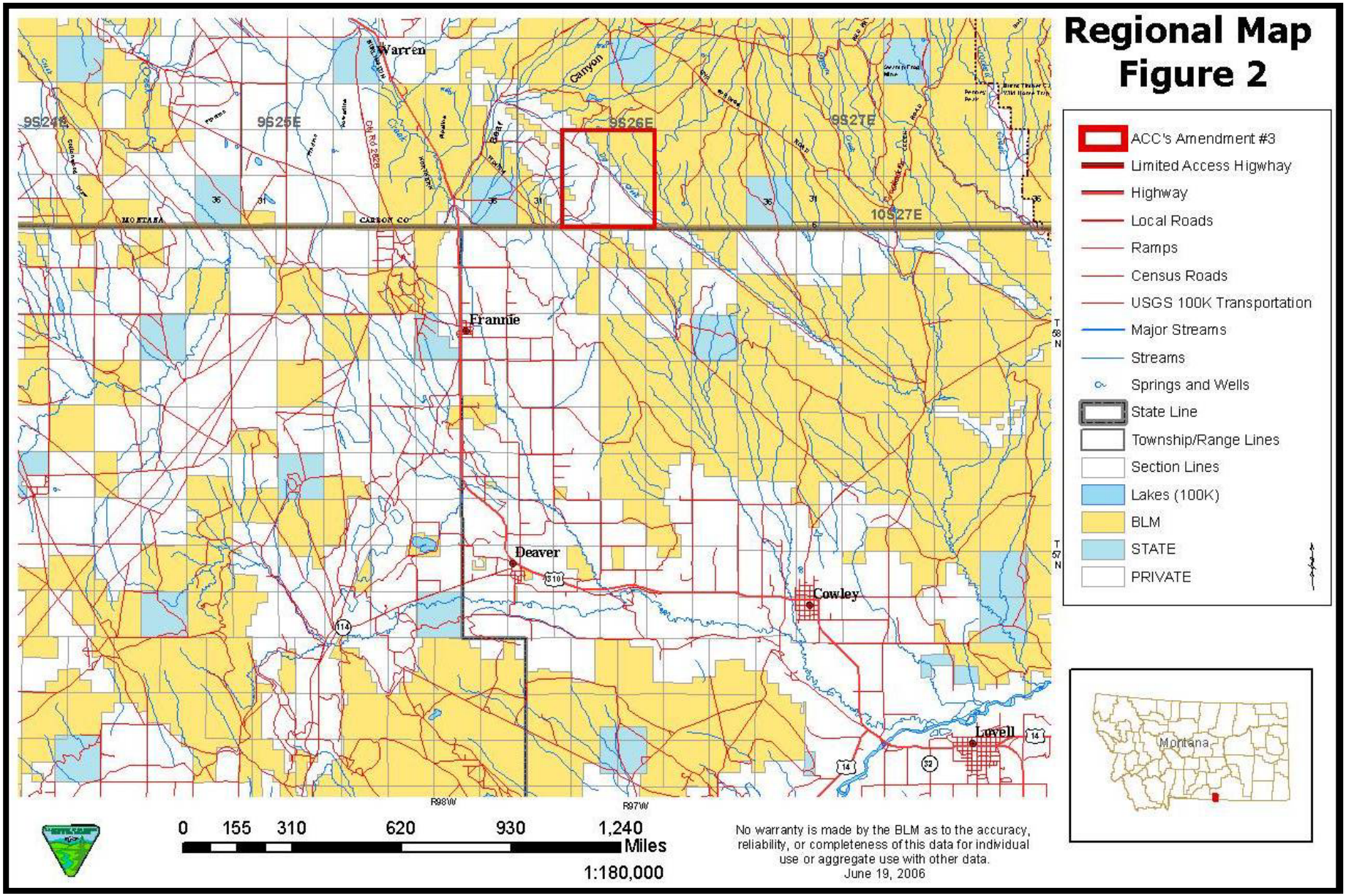


ACC NED PROPERTY Figure 1

Legend

- ACC Permit Boundary
- ACC Amendment #3
- State Line
- BLM
- STATE
- PRIVATE

No warranty is made by the BLM as to the accuracy, reliability, or completeness of this data for individual use or aggregate use with other data.
June 19, 2006


Regional Map
Figure 2
ACC's Amendment #3
Limited Access Highway
Highway
Local Roads
Ramps
Census Roads
USGS 100K Transportation
Major Streams
Streams
Springs and Wells
State Line
Township/Range Lines
Section Lines
Lakes (100K)
BLM
STATE
PRIVATE
Warren
Frannie
Deaver
Cowley
Lovell
Canyon
9524E
9525E
9526E
9527E
10527E
MONTANA
CARSON CO
R98W
R97W
T 58 N
T 57 N
Montana
0 155 310 620 930 1,240
Miles
1:180,000
No warranty is made by the BLM as to the accuracy, reliability, or completeness of this data for individual use or aggregate use with other data.
June 19, 2006

Legal Descriptions for ACC's Amendment #3			
Claim	Ownership	Legal Description	Acres
Ned 16	American Colloid Company	E2SESE, Sec. 33, T9S R26E	20
Ned 17	1500 Shure Drive	W2SESE, Sec. 33, T9S R26E	20
Ned 30	Arlington Heights, IL 6004	S2SWSE, Sec. 33, T9S R26E	20
Ned 31		N2SWSE, Sec. 33, T9S R26E	20
Ned 20		S2SESW, Sec. 33, T9S R26E	20
Ned 21		N2SESW, Sec. 33, T9S R26E	20
Ned 22		S2NESW, Sec. 33, T9S R26E	20
Ned 23		N2SESW, Sec. 33, T9S R26E	20
Ned 19		N2NWSE, Sec. 33, T9S R26E	20
Ned 24		S2SENW, Sec. 33, T9S R26E	20
Ned 25		N2SENW, Sec. 33, T9S R26E	20
Ned 26		W2S2NENW, Sec. 33, T9S R26E	10
Ned 27		S2SWNW, Sec. 33, T9S R26E	20
Ned 28		N2SWNW, Sec. 33, T9S R26E	20
Ned 29		S2NWNW, Sec. 33, T9S R26E	20
Ned 42		S2NESE, Sec. 29, T9S R26E	20
Ned 41		S2SENW, Sec. 29, T9S R26E	20
Ned 50		S2NWSW, Sec. 28, T9S R26E	20
Ned 46		S2NENE, Sec. 32, T9S R26E	20
Ned 47		N2SENE, Sec. 32, T9S R26E	20
	Subtotal		**390**
Ned 23	Bureau of Land Management	N2NESE, Sec. 29, T9S R26E	20
Ned 44		S2SENE, Sec. 29, T9S R26E	20
Ned 48		N2NWNE, Sec. 29, T9S R26E	20
Ned 49		N2SENE, Sec. 29, T9S R26E	20
Ned 45		S2NWNE, Sec. 29, T9S R26E	20
	Subtotal		**100**
	Amendment Total		**490**